

REMARKS

Claims 1-21 are now present in the application. Claims 6, 7, 9, 12-18 and 20 have been amended and claim 21 has been added. Claims 1-6, 9, 14-18 and 21 are independent. Reconsideration of this application, as amended, is respectfully requested.

Rejection Under 35 U.S.C. § 112

Claims 9 and 11-15 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

The Examiner asserts that claim 9 expresses goals of the invention without a corresponding structure which would allow the expressed goals to be achieved. As the Examiner will note, claim 9 has been amended to include "a power amplifier for amplifying an amplitude of the signal to supply the signal as a power to said ultrasonic oscillator." Applicants respectfully submit that amended independent claim 9 now includes sufficient structure to accomplish the goal of supplying power to the ultrasonic oscillator in a range from 1W to 10W as recited by claim 9.

With regard to claim 12, the Examiner asserts that there is no antecedent basis for the recitation "said passive element." As the Examiner will note, this recitation has been deleted from claim 12.

With regard to claim 13, the Examiner questions how the switching transistors are connected to the other components. As the Examiner will note, claim 13 has been amended to clarify that the switching transistor is connected between the power amplifier and the ultrasonic oscillator.

With regard to claims 14 and 15, the Examiner questions how the resonance and anti-resonance frequencies are regulated. Applicants respectfully submit that claims 14 and 15 are definite and clear. Referring to page 7, lines 8-28 of the present specification, it is described how the resonance and anti-resonance frequencies are regulated. It is believed that there is sufficient structure in claims 14 and 15 to accomplish the regulation of the difference between the resonance frequency and the anti-resonance frequency, since the ultrasonic oscillator itself is configured to regulate the difference between the resonance frequency and the anti-resonance frequency in the manner disclosed at the above portion of the present disclosure.

In view of the above amendments and remarks, Applicants respectfully submit that claims 9 and 11-15 are definite and clear. Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph are respectfully requested.

Rejection Under 35 U.S.C. § 102

Claims 1-3 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Fastenemeie et al., EP 0 173 761. Claims 4, 5, 10 and 18-20

stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fastenemeie et al. in view of Haring, DE 40 35 828. These rejections are respectfully traversed.

The present invention is directed to an ultrasonic cleaning apparatus, wherein a combination of elements are recited including "a power amplifier for amplifying an amplitude of the signal to supply the signal as power to said ultrasonic oscillator," "a detector for detecting a state of said ultrasonic oscillator," "a controller for controlling a frequency of said signal depending on an output detected by the detector" and "wherein said power supply to said ultrasonic oscillator is set to a range from 1W to 10W." Independent claims 1 and 8 of the present invention exemplify the above aspects of the present invention and require the above aspects of the present invention. In addition, independent claim 8 requires that "a difference between a resonance frequency of said ultrasonic oscillator and an anti-resonance frequency thereof is regulated to 1 kHz or more." Applicants respectfully submit that the references relied on by the Examiner are insufficient to teach the present invention as required by independent claims 1 and 8.

In particular, the Examiner relies on the Fastenemeie et al. reference to anticipate independent claims 1 and 8 of the present invention. The Examiner recognizes that the Fastenemeie et al. reference fails to disclose the power supplied to the ultrasonic oscillator being set to arrange from 1W to 10W as required by independent claims 1 and 8. However, the Examiner has taken the

position that this recitation is not further limiting to the claimed structure and therefore carries no patentable weight. Applicants take exception to the Examiner's position and respectfully submit that this position is unreasonable. The recitation of the power being supplied to the ultrasonic oscillator being within the range of from 1W to 10W is clearly a recited feature of the independent claims of the present invention. Specifically, a power amplifier for amplifying an amplitude of the signal is used to supply the signal as power to the ultrasonic oscillator. This power supplied by the power amplifier to the ultrasonic oscillator is set to a range from 1W to 10W. Since a reference must teach each and every element of a claim in order to anticipate a claim, Applicants submit that the Fastenemeie et al. reference fails to anticipate independent claims 1 and 8 of the present invention. If the Examiner is still of the position that the above recitation carries no patentable weight, it is requested that the Examiner provide a basis for this position. Applicants are unaware of any limitation that can be entirely ignored as the Examiner appears to be doing.

The object of the present invention is to provide a portable type ultrasonic cleaning apparatus capable of exhibiting excellent effects by lowering the power consumption of the ultrasonic cleaning apparatus such that it can be used at home with ease (see page 3, lines 9-11 and page 11, lines 32-34 of the present specification).

In order to achieve the above objects, it is necessary that the present invention have the power supplied to the ultrasonic oscillator being set as recited

in independent claims 1 and 8 of the present invention. Specifically, the power supplied to the ultrasonic oscillator should be set in a range of from 1W to 10W. This limitation of the power supply causes the ultrasonic cleaning apparatus to be compact. As a result of this, the ultrasonic cleaning apparatus is usable by a portable power supply (a dry cell, a battery, and AC adapter, and so on). Furthermore, Applicants have discovered that if the power is below 1W, an amplitude necessary for cleaning is not obtained. Furthermore, if the power exceeds 10W, a little loss is ignored. (See page 11, lines 30-32 of the present disclosure). In other words, if the power supplied to the ultrasonic oscillator is set to a range from 1W to 10W, the ultrasonic cleaning apparatus can exhibit excellent effects for cleaning dirty clothes.

On the other hand, the Fastenemeie et al. and Haring references do not disclose and suggest what the power supply to the ultrasonic oscillator may be. The Examiner has asserted that the above apparatus have a range that ensure "minimum power transfer and stability empowering the ultrasonic transducer and cleaning... ." However, Fastenemeie et al. and Haring do not disclose and suggest a range of the power supply to provide a portable type ultrasonic cleaning apparatus capable of exhibiting excellent effects by lowering the power consumption of the ultrasonic cleaning apparatus such that it can be used at home with ease.

Since the Fastenemeie et al. reference is silent with regard to the power supplied to the ultrasonic oscillator, Applicants respectfully submit that this

reference fail to anticipate independent claims 1 and 8 of the present invention. Since the Haring reference relied on by the Examiner also is silent with regard to the power supplied to the ultrasonic oscillator, this reference fails to make up for the deficiencies of Fastenemie et al.

With regard to independent method claim 18, the Examiner asserts that it is well within the skill of a routineer in the art to so drive the device using the value selected for power, phase range and frequency, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involve only routine skill in the art. The Examiner relies on the *In re Aller* case for this position. Applicants respectfully submit that the Examiner's treatment in the present case is not in accordance with the *In re Aller* case. There is absolutely no disclosure in the Fastenemie et al. and Haring references of the general conditions of a claim. Specifically, these references are silent with regard to the power, phase range and frequency of the devices. Accordingly, the general conditions are not disclosed by the references and therefore one having ordinary skill in the art would not appreciate discovering the optimal or workable ranges in these particular devices. In *In re Aller*, a claimed process was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70%. A reference process differed from the claims process only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%. As can be seen, in the *In re Aller* case, both the temperature and acid concentration were recognized as

being result effective variables by the prior art. In the present case, neither of the references have been shown to recognize that the power, phase range and/or frequency are result effective variables. "A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as a routine experimentation." *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

Since the Examiner has not shown that the power, phase range and frequency are result effect variables, Applicants respectfully submit that the Examiner's modification in the present case is improper and should be withdrawn.

The above arguments also apply with regard to the other variables recited in the claims. For example, independent claim 8 requires that the difference between a resonance frequency of the ultrasonic oscillator and an anti-resonance frequency be regulated to 1 kHz or more. Since the references relied on by the Examiner do not mention the regulation of the difference between the resonance frequency and the anti-resonance frequency, Applicants respectfully submit that the references fail to anticipate this aspect of the present invention and also, one having ordinary skill in the art would not recognize optimizing the specific variable recited in independent claim 8.

In view of the above amendments and remarks, Applicants respectfully submit that claims 1-5, 8, 10 and 18-20 clearly define the present invention over

the references relied on by the Examiner. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. §§ 102 and 103 are respectfully requested.

Allowable Subject Matter

Claims 6, 7, 16 and 17 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicants greatly appreciate the indication of allowable subject matter by the Examiner.

As the Examiner will note, claims 7, 16 and 17 have been rewritten in independent form including all of the limitations of independent claim 1 and any intervening claims. In addition, claim 6 has been rewritten including the limitations of independent claim 1 only. Since the amendment to claim 6 is self consistent without the limitations of intervening claims 2 and 3, Applicants submit that claim 6 is in condition for allowance as well.

In view of the above, it is submitted that claim 6, 7, 16 and 17 should now be in condition for allowance.

With regard to claims 9 and 11-15, the Examiner has only rejected these claims in view of 35 U.S.C. § 112, second paragraph. It is believed that claims 9 and dependent claim 11 and 12 are in condition for allowance, since the rejection under 35 U.S.C. § 112, second paragraph has been overcome. With regard to

claim 13, it is believed that this claims is allowable due to its dependence upon allowable independent claim 1. Furthermore, it is believed that claims 14 and 15 are allowable since these claims have been rewritten in independent form including all of the limitations of independent claim 1.

In view of this, it is believed that claims 9 and 11-15 should be in condition for allowance. Favorable consideration and allowance of additional claims 9 and 11-15 are respectfully requested.

Additional Claims

Additional independent claim 21 has also been added for the Examiner's consideration. Additional independent claim 21 requires that the difference between the resonance frequency of a synthesis circuit and the anti-resonance frequency thereof close to the resonance frequency is regulated to 1 kHz or more, the synthesis circuit being constituted by the passive element and the ultrasonic oscillator. Since neither of the Fastenemie et al. and Haring references disclose this aspect of the present invention, it is believed that additional independent claim 21 is also in condition for allowance.

Favorable consideration and allowance of additional claim 21 are respectfully requested.

CONCLUSION

Since the remaining references cited by the Examiner have not been utilized to reject the claims, but merely to show the state-of-the-art, no further comments are deemed necessary with respect thereto.

All the stated grounds of rejection have been properly traversed and/or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently pending rejections and that they be withdrawn.

It is believed that a full and complete response has been made to the Office Action, and that as such, the Examiner is respectfully requested to send the application to Issue.

In the event there are any matters remaining in this application, the Examiner is invited to contact Paul C. Lewis, Registration No. 43,368 at (703) 205-8000 in the Washington, D.C. area.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Applicants respectfully petition under the provisions of 37 C.F.R. § 1.136(a) and § 1.17 for a one-month extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of **\$110.00** is attached hereto.

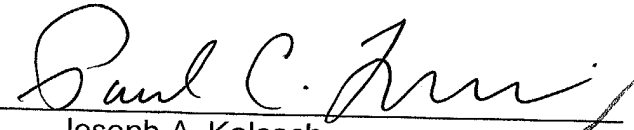
If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit

Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made